Technical Information

Honeywell

Experion Station Specification

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Revision History

Revision	Date	Description
0.1	June 2006	Preliminary publication
1.0	July 2006	Release publication
1.1	November 2006	Minor updates

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1. Product Introduction

1.1. Experion System

The Experion Process Knowledge System (PKS) is Honeywell's unified control system for process, business, and asset management that helps industrial manufacturers increase their profitability and productivity. Experion takes customers well beyond distributed control system (DCS) functionality with an advanced automation platform solution and innovative application integration to improve business performance and peace of mind.

1.2. Architecture Overview

The Experion platform comprises many different integrated hardware and software solutions depending upon the needs of the installation. The pictured architecture is a representation of many of the possible nodes that can be utilized in the Experion architecture. Note that the architecture is highly scalable and not all nodes are necessary or required.

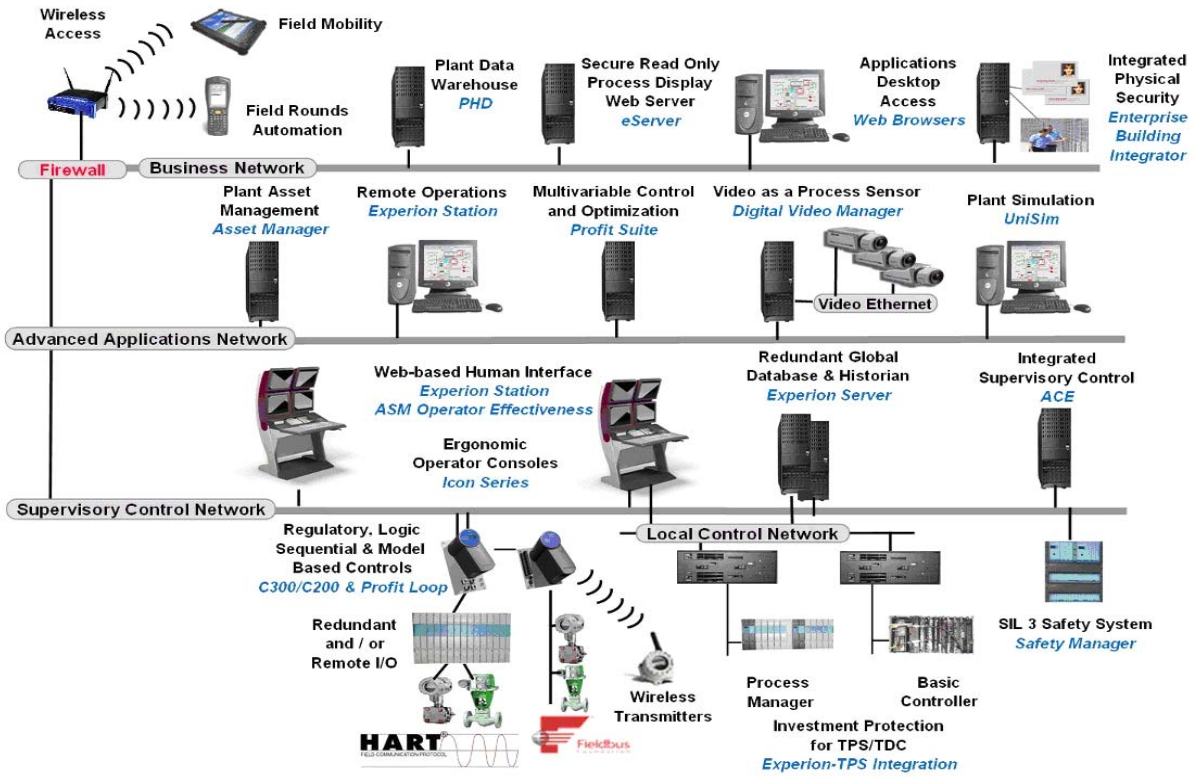

Figure 1. Sample Experion Architecture

1.3. Experion Station Overview

The Experion Station is the human machine interface (HMI) that can be utilized for different functions around a plant or mill including operations, monitoring, maintenance and engineering.

There are several types of Experion Station available to satisfy a broad range of needs. A mix of Experion Station types can be implemented to provide the most appropriate, site-specific solution possible.

All Experion Station types utilize the same operator interface and share the general feature set for consistent operation regardless of node. This also means that configuration is simplified as custom displays, trend sets, etc. are configured once and available across the various types of Experion Stations. All types can be implemented as desktop models or fitted in Icon, legacy furniture (such as Z or classic styles) or custom furniture. All types host the Experion engineering tools encompassed in the Configuration Studio application. Each Experion Station type includes additional functionality available for that type as described below.

Experion Station – Flex	
Abbreviation	ES-F
Description	The ES-F is a versatile operator interface that utilizes a client-server relationship to present process data to the operator. It is suitable for full-time operations in a large percentage of applications and is also used for engineering and wireless Station implementations.
Details	• The ES-F can be configured with a Static or Rotary Connection. The static connection provides a permanent, dedicated link. The Rotary connection provides an “as required” connection, enabling numerous casual users to access the Experion system as needed, which is advantageous from a licensing point of view. For example when 40 Station connections are configured, 40 connections can be established at one time but the software could be installed and be available for use to many more than 40 individuals. • Casual users can view Station displays using Microsoft’s Internet Explorer (IE).

Experion Station – Console	
Abbreviation	ES-C
Description	The ES-C provides direct access to process data, alarms and events from control sources such as C200 and C300 Controllers, Fieldbus Interface Modules (FIM), I/O Link Interface Modules (IOLIM), ACE nodes and Honeywell's TPS LCN. This provides a high-availability operations platform for critical processes.
Details	• The ES-C is connected to the Experion server for communication to SCADA and DSA point sources, System History, the System Event Journal, and the System Configuration File Server. • The ES-C supports implementation of a 'logical console'. This allows operators to fully respond to all alarms/events within their scope of responsibility regardless of operator actions on other consoles; providing a single work space for an operator for event handling, alarm acknowledgement, alarm silencing, display manipulation and other functions.
TPS Integrated	• An ES-C can be connected to the LCN, this is known as an Experion Station – TPS or ES-T, providing a consistent operator interface, unifying the TPS and Experion systems. The ES-T brings the Experion Alarm, Event, and Message Summary style of displays to TPS while retaining the ability to belong to a TPS Console Group and fully supporting Native Window functionality. As such, the ES-T can also function as both Universal Station and a GUS replacement. • ES-T and ES-C's cannot be combined on one Server. • The ES-T requires an Experion Server – TPS (ESVT) in order to use ES-C functions such as HMIWeb-based displays, direct connection to controllers, GUS displays, etc. However, it may be installed without an Experion server and configured for US Native Window-only functionality.

Experion Station – Console Extension	
Abbreviation	ES-CE
Description	The ES-C can have low cost Station clients connected to it called Experion Station - Console Extensions. The ES-CE inherits console functions of its parent ES-C and receives all of its data, alarm, and events from its parent ES-C.
Details	• Users can configure operator consoles with at least one ES-C (two is recommended for redundancy reasons) and fill out the remaining Stations with ES-CEs to achieve cost savings while maintaining robustness requirements. • Like the ES-C, the ES-CE supports implementation of a 'logical console'. A combination of ES-C's and ES-CE's connected to the same server can be grouped together to form a logical console.
TPS Integrated	• Even though no directly LCN connection is available with the ES-CE, the ES-CE can connect to an ES-T and be used with LCN-based systems. • Only one (1) Native Window is available for sharing between the ES-T and the ES-CEs that are connected to it.

2. Specifications

2.1. Station Sizing

Limits shown here apply to the quantity of Station types available for a single Experion server. Multiple Experion servers can be combined into a single operational system.

Station and Server Type	Maximum
Experion Server	
Total Experion Stations (ES-F + ES-C + ES-CE)	40 [1]
ES-C	10
ES-C + ES-CE	20
ES-CE	0 to 3 per ES-C
Experion Server – TPS (ESVT)	
Total Stations (ES-F + ES-C + ES-CE)	40 [1]
ES-T	20 [2]
ES-T + ES-CE	30 [3]
ES-CE	0 to 3 per ES-C

Note 1 – The number of ES-F nodes that can be supported is limited by the Experion server data access performance (parameter per second that can be supplied by the server). The total number of parameters per second (PPS) for all ES-F nodes for any data source should not exceed the limits in the 'Server Data Access Acquisition Performance' table in the Experion Server Specification.

Note 2 – Up to 20 ES-T nodes are supported when no devices using the CDA interface (ACE, C200, C300 etc.) are connected, otherwise the standard limit of 10 ES-T applies.

Note 3 – Up to 30 ES-T+ES-CE are supported when no devices using the CDA interface (ACE, C200, C300 etc) are connected, otherwise the standard limit of 20 ES-T + ES-CE applies.

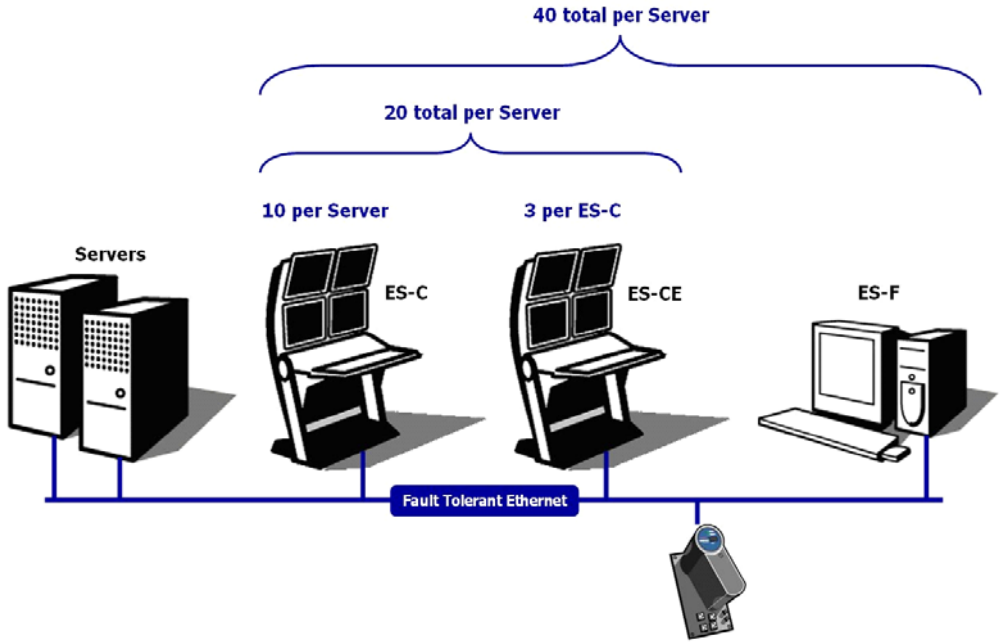

Figure 2. Station sizing limits when devices using the CDA interface (ACE, C200, C300 etc.) are connected

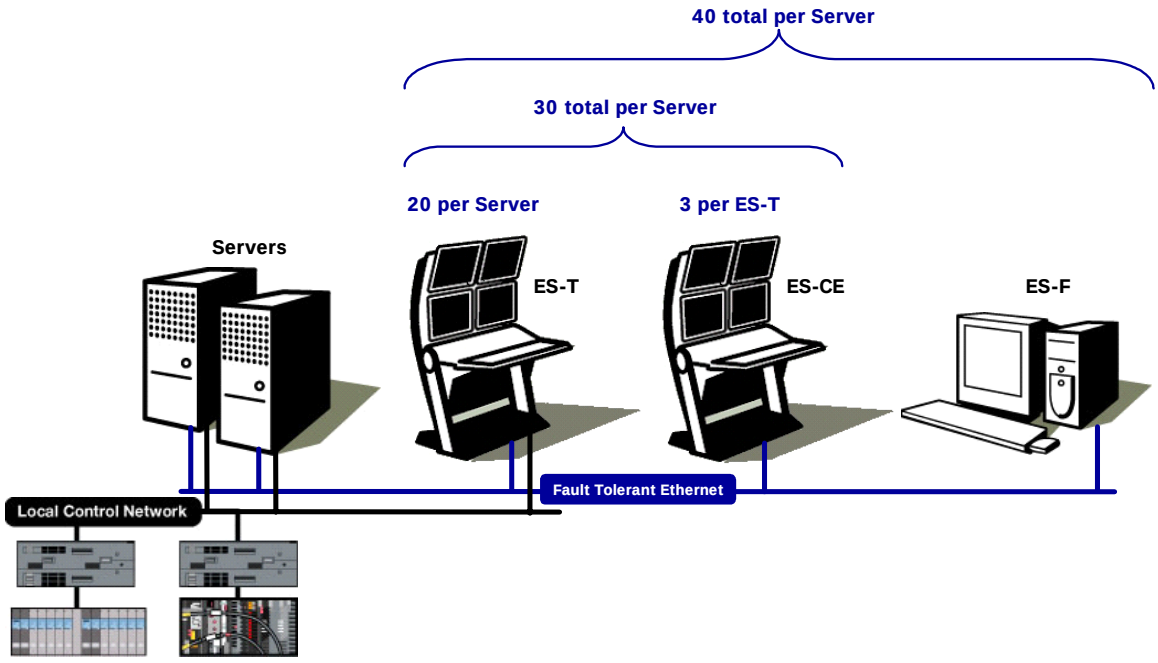

Figure 3. Station sizing limits for the ES-T when no devices using the CDA interface (ACE, C200, C300 etc.) are connected

2.2.

Station Display Performance

Station Display Performance Specifications	Specification
Display Parameters	
Number of dynamic parameters per display [1]	700 or fewer
Number of parameters per second (PPS) per Station PC [2]	1000/sec
Number of dynamic parameters per Station PC [3]	1500 or fewer
Display Updates	
Maximum Display Update Rate [4]	1 second
Typical Field Change to Display Update Time with 700 or less Parameters per Display	< 2 seconds
Typical non-complex Display Call Up Time with 100 or less Parameters [5]	< 1 second
Typical complex Display Call Up Time with 200 or less Parameters [5,6]	< 2 seconds

Note 1 – For displays above 300 dynamic parameters, Honeywell recommends the use of the Performance Station PC.

Note 2 – An ES-T can support a maximum of 1600 PPS from the LCN including the data supplied to any connected ES-CEs.

Note 3 – When greater than 1000 Dynamic Parameters are configured, the update rate must be greater than 1 sec. to not violate max PPS.

Note 4 – The recommend continuous display update rate is 4 seconds.

Note 5 – Call up time is dependent on display complexity; a non-complex display uses standard HMIWeb Display Builder objects with limited use of scripts; this excludes the first initial call up.

Note 6 – Complex displays are defined by the number of data bound objects identified, large amount of total objects on the display, and a significant amount of scripting; includes custom faceplates and popups; assumes performance platform; this excludes the first initial call up.

2.3. Multi-window Functionality

Multi-window functionality is a purchased option for the Experion Station - Flex and is standard for the Experion Station - Console and Console Extension. A Multi-window Station uses SafeView to manage the placement of its windows.

Description	Specification
Number of Monitors	Up to 4
Number of Windows [1]	Up to 16
Number of concurrent faceplates	Up to 8

Note 1 – Number of windows include faceplates, custom displays, Experion System displays etc. For an ES-T, the number of windows includes faceplates, custom display, Experion System displays, GUS, and up to 1 Native Window display. For backward compatibility reasons, the multi-window option for ES-F supports the configuration of multiple instances of Station (Multiple Static Station Option) as an alternative to a multi window implementation.

3. Hardware and Software Requirements

3.1. Experion Station PC Requirements

A PC must meet the following specifications to be used as an Experion Station. These guidelines are intended to provide a minimum baseline. Honeywell-supplied platforms will meet these specifications but may not necessarily be the example platforms listed below. PCs purchased directly through Honeywell carry full support as a qualified offering. For installation information on PC platforms, including physical, electrical, corrosion, and other environmental requirements, please consult Honeywell installation guides or Dell documents.

Minimum Experion Station PC – This is the minimum PC platform capable of running Experion Station components. This platform should only be used for single screen monitoring scenarios involving low complexity graphics.

Standard Experion Station PC – This is the typical PC platform capable of running Experion Station components. This platform typically has a single or dual screen arrangement and utilizes graphics that are of medium complexity (up to 300 data bound objects, limited use of display scripting, etc.).

Performance Experion Station PC – This PC platform is utilized for demanding applications involving complex graphics (up to 700 data bound objects, heavy use of display scripting, etc.) that were built within documented guidelines. This platform may utilize single, dual, triple or quad screen configurations

ES-F and ES-CE Requirements			
System Configuration	**Minimum**	**Typical**	**Performance**
Processor	3.0 GHz Pentium IV or faster	3.4 GHz Xeon or faster	Dual 3.4 GHz Xeon or faster
RAM	512 MB	1 GB	1 GB
Networking [1]	100 Mbps Ethernet or FTE		
Video Resolution	1024 x 768 or 1280 x 1024 (standard) 65K colors		
Video Memory (VRAM) per channel	32 MB	32 MB	32 MB
Operating System	Windows XP SP2 Professional		
Hard Drive	20 GB	40GB	80 GB
Example Hardware Please contact your Honeywell representative for Honeywell-supplied platform details.	MZ-NTPC63 Dell Precision WS470 MZ-NTPC31, MZ-NTPC32 Dell Precision WS360, WS370	MZ-NTPC63 Dell Precision WS470	MZ-NTPC64 Dell Precision WS470
Note 1 – 10 Mbps Ethernet Network between Servers and Stations is not officially supported, although it may perform acceptably on small systems.			

ES-C Requirements			
System Configuration	**Minimum**	**Typical**	**Performance**
Processor	3.0 GHz Pentium IV or faster	3.4 GHz Xeon or faster	Dual 3.4 GHz Xeon or faster
RAM	1 GB		
Networking [1]	FTE		
Video Resolution	1024 x 768 or 1280 x 1024 (standard) 65K colors		
Video Memory (VRAM) per channel	32 MB	32 MB	32 MB
Operating System	Windows XP SP2 Professional		
Hard Drive	80 GB (IDE/ATA)		
Optional LCN Connection [2]	LCNP4 Interface Board		
Example Hardware Please contact your Honeywell representative for Honeywell-supplied platform details.	MZ-NTPC63 Dell Precision WS470 MZ-NTPC31, MZ-NTPC32 Dell Precision WS360, WS370	MZ-NTPC63 Dell Precision WS470	MZ-NTPC64 Dell Precision WS470
Note 1 – For CDA devices, ES-Cs can only communicate directly with devices that reside in the same FTE Community. Note 2 – The ES-T is only qualified with PC platforms that are purchased from Honeywell. Performance platforms are recommended for ES-T implementations due to multiple displays and additional TPS components running on the platform. Minimum and Typical platforms are adequate for low graphics complexity or Native Window only usage.			

3.2. Minimum TPS System Specifications for ES-T

Parameter	Specification
Minimum APP	APP R230 Release if APP exists on target TPN
Minimum GUS	GUS R340 Release if GUS exists on target TPN
Minimum TPN Release	TPN R641.2 or later

4. Model Numbers

4.1. Experion Station – Flex

Model Number	Description
EP-STAT01	Experion Station – Flex (1 Connection)
EP-STAT05	Experion Station – Flex (5 Connections)
EP-STAT10	Experion Station – Flex (10 Connections)
EP-SMWIN1	Multi-window Support, per PC platform
One ES-F license is delivered with the Experion base software license.	

4.2. Experion Station – Console

Model Number	Description
EP-STAC01 [1]	Experion Station – Console (1 Connection)
EP-STAC05 [1]	Experion Station – Console (5 Connections)
EP-STAC10 [1]	Experion Station – Console (10 Connections)
EP-CONTPS [2]	Experion Station TPS Enabler, per Console Station

Note 1 – Includes Multi-window Support. Requires an FTE network.

Note 2 – An Experion Station – Console license is required with this option. The PC must be a Honeywell Computer Platform with a Honeywell LCN Interface (TP LCNP02). An ES-C with the TPS enabler (ES-T) can optionally be used without an ESVT for Native Window-only functionality. When connected to the Server, the Server must be TPS Enabled. All ES-Cs that connect to an ESVT must be TPS Enabled.

4.3. Experion Station – Console Extension

Model Number	Description
EP-STACEX	Experion Station – Console Extension
Includes Multi-window Support.	

4.4. Experion Station – TPS (ES-T) and ES-CE Options

Model Number	Description
EP-DSS000 [1]	GUS Display Runtime for Experion
EP-MDS000 [2]	GUS Multiple Displays for Experion
EP-GPT000 [3]	GUS Display Builder for Experion
EP-RNW000 [4]	Remote Native Window Client for Experion
EP-FLT000 [5]	File Transfer for Experion
EP-RGC000 [6]	GUS Remote Displays Client for Experion

Note 1 – One required for each ES-T where GUS Displays are used, includes one GUS display, the HCI Client add-in package that allows GUS displays to act as an OPC Data Access Client and Remote GUS Server.

Note 2 – One required for each ES-T or ES-CE where multiple GUS graphics are used. On an ES-T with no remote GUS display clients up to eight (8) GUS displays can be shown concurrently. On an ES-T with remote GUS display clients up to four (4) GUS displays can be shown concurrently. On an ES-CE connected to an ES-T up to four (4) GUS displays can be shown concurrently.

Note 3 – One required for each PC. Can run both on-line and off-line.

Note 4 – One required for each ES-CE and ES-F where Native Window is used remotely. The Native Window is not available on the host ES-T.

Note 5 – One required for each ES-T, ESVT and ACE-T where file transfer is used.

Note 6 – One required for each ES-CE where GUS displays are used.

4.5. Experion Station Hardware

Model Number	Description
MZ-NTPC63	Operator Station with Windows XP, single processor
MZ-NTPC64	Operator Station with Windows XP, dual processor
TP-LCNP02	Honeywell LCN Connection - required for LCN Connected ES-C
TP-DFP191	Desktop 19” Flat Panel Display
TP-FPD203	Z, EZ, & Desktop 20.1” Flat Panel Display
TP-FPT203	Z, EZ, & Desktop 20.1” Flat Panel Touchscreen
NE-NICS01	FTE Dual Port Communication board, 100 Mbps
MZ-PCEB23	Ethernet Communication Board, 100 Mbps for Station PC
MZ-PCEM26	2 GB Memory Expansion Module for Station PC
MZ-QUAD04	Quad Display Video Card, 32 MB per channel
TP-DSOEP1 [1]	Desktop Operator Entry Panel`
TP-DIKBNA	Desktop Integrated Keyboard w/o Trackball
TP-DIKBTA	Desktop Integrated Keyboard with Trackball
TP-OPADP1	Operator Entry Panel Adapter to Com Port
TP-DUIKBN [1]	Desktop Integrated Keyboard w/o Trackball, USB Interface
MZ-PCDD06	Trackball w/PS-2 Connector
EP- EPKY01	Experion Keyboard Overlay
Note 1 – These keyboards reflect desktop use. Console integrated keyboards are also available with the console hardware (i.e. integration into Z, EZ, Classic, and Honeywell Icon Series Consoles).	

5. Glossary

Term or Acronym	Description
ACE	Application Control Environment. Experion controller node hosted on a server-grade PC Platform. The ACE node is ideally suited for supervisory control solutions and integration with third party control systems.
C200	A specific type of Honeywell Process Controller
C300	A specific type of Honeywell Process Controller based on the series C form factor
CDA	Control Data Access is the Experion system communication infrastructure and data access interface schema that provides application integration with Experion system objects.
DCS	Distributed Control System
DSA	Distributed System Architecture
ES-C	Experion Station – Console
ES-CE	Experion Station – Console Extension
ES-F	Experion Station – Flex
ES-T	Experion Station - TPS
ESVT	Experion Server - TPS
Experion Server	The node (optionally redundant) at the heart of Experion. The servers encompasses a wide range of subsystems including history collection, SCADA interfaces, alarm/event, etc.
FIM	Foundation Fieldbus Interface Module
FTE	Fault Tolerant Ethernet, the Experion control network.
GUS	Global User Station
HMI	Human machine interface
HMIWeb	Human machine interface based on Web Technology
HTML	HyperText Markup Language
Icon Series	Flat Screen technology hardware console
IKB	Integrated Keyboard
IOLIM	IO Link Interface Module. Services and processes all communications between the Experion Controllers and Process Manager I/O (PMIO)
LCN	Local Control Network
PPS	Parameters per second
SafeView	SafeView is used to control the characteristics of and access to windows within the Microsoft Windows workspace. It is used in conjunction with Station to provide Multi-window Station.
SCADA	Supervisory Control and Data Acquisition
TPN	Total Plant Network
TPS	TotalPlant® Solution (TPS) system

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